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CDM FEDERAL PROGRAMS CORPORATION

April 3, 1990

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CERCLA Enforcement Section
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PROJECT: EPA CONTRACT NO.: 68-W9-0004

DOCUMENT NO.: TES7-C03040-EP-BPHS

SUBJECT: Work Assignment C03040
Data Comparison Report
Delta Quarries Site
TES7-C03040-RT-BPHT

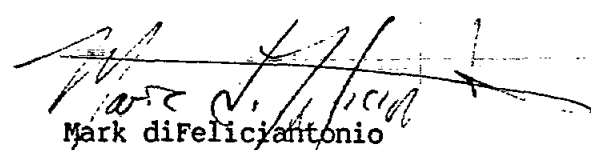
Dear Ms. Spiewak:

Please find enclosed the Data Comparison Report for the Delta Quarries Site as partial fulfillment of the reporting requirements for this work assignment.

If you have any comments regarding this submittal, please contact me at (215) 293-0450 within two weeks of the date of this letter.

Sincerely,

CDM Federal Programs Corporation (FPC)


Mark diFeliciano
Regional Manager

MdF/dmh

Enclosure

cc: Donna McCartney, EPA Work Assignment Manager, CERCLA Region III
Jean Wright, TES VII Zone Project Officer (letter only)
Constance V. Braun, FPC Program Manager

DATA COMPARISON REPORT
DELTA QUARRIES SITE
RI/FS COMPLIANCE OVERSIGHT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Waste Programs Enforcement
Washington, D.C. 20460

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EPA Region	: III
Site No.	: 3BN3
Contract No.	: 68-W9-0004
CDM Federal Programs	
Corporation Document No.	: TES7-C03040-RT-BPHT
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Date Prepared	: April 3, 1990

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1.0 INTRODUCTION

CDM Federal Programs Corporation (FPC) has been tasked by the United States Environmental Protection Agency (EPA) under EPA Contract No. 68-W9-0004, TES VII, Work Assignment C03040, to provide continuing compliance oversight support during the Remedial Investigation/Feasibility Study (RI/FS) being conducted at the Delta Quarries Site in Blair County, Pennsylvania. As part of the oversight activities conducted under this work assignment, FPC accepted split samples collected by the PRP contractor, Canonic Environmental Services (CES). This report presents a comparison of the samples analyzed by the PRP laboratory with the samples analyzed through the CLP laboratory program.

2.0 DATA ORGANIZATION

The sampling period covered by this report is August 1989 through September 1989. The analytical data is organized according to the date of the sampling. All samples were collected from groundwater and were analyzed for TCL compounds. The split samples were received from two residential wells and five monitoring wells. The Bickle residential well sample (RW3) was analyzed for total metals (unfiltered), and the Ulrich residential well sample (RW12) was analyzed for dissolved metals (filtered), as were the samples collected from monitoring wells 9-88, 13-88 and 19-88. The sample location and the parameters for which the sample was analyzed are provided under each sampling date. Tables are provided for each parameter in which positive sample results (above detection limit) were obtained from either FPC or CES data.

3.0 COMPARISON METHODOLOGY

Positive analytical values (above detection limit) detected in both FPC samples (S_f) and CES samples (S_c) were compared for relative standard deviation (RSD). The equation for determining RSD is as follows:

$$\frac{|S_f - S_c|}{(S_f + S_c)/2} \times 100 = \% \text{ RSD}$$

The RSD value for each sample for a detected parameter is provided in the tables under each sampling date. Sample values that were qualified with laboratory qualifier codes were included if the value of the corresponding sample had a positive value. Laboratory codes used are:

- U - Undetected, Contract Required Quantification Limit (CRQL) given in parentheses, if supplied.
- UL - Undetected, detection limit probably higher than reported.
- B - Not detected substantially above level reported in laboratory or field blanks.
- J - Present, quantification may not be accurate.
- R - Results may be unreliable.

Field and trip blanks were not included since they are not split samples. Compounds detected in one sample at a level below the detection limit of the other laboratory have been included in the tables although calculation on %RSD was not possible. N/A was noted under the RSD column and these parameters were not considered in the final evaluation of laboratory results.

4.0 EVALUATION OF RESULTS

Monitoring Well 17

Split samples were accepted on August 17, 1989 from a monitoring well of uncertain identity. Based on the site map, it was recorded as monitoring well 17. On September 11, 1989, FPC received a call from CES personnel, identifying this well as MW-2. CES's data did not include results for samples from MW-2 on this date, but did include results for Monitoring Wells 17-88, 18-88, and 11-88 for this date. Of these samples, the results from 18-88 most nearly approach the results from FPC's MW-17, but no conclusions can be drawn from the information provided to date.

Residential Well (RW)3 - R. BICKLE

These samples were analyzed for TCL and TAL compounds. Volatile organic compounds (VOCs) were detected in FPC's sample (acetone) and CES's samples (methylene chloride), but not at levels significantly higher than those of field or laboratory blanks. Several semi-volatile organic compounds were detected in CES's sample at levels equal to the CRQL, but qualified by the laboratory as unreliable. The samples collected from his well were also analyzed for total metals. The metals data were within 18.2% RSD in all but two cases. The aluminum analyses showed 37.5 ug/l in the FPC sample, and 60 ug/l in the CES sample; however, both samples were qualified as not significantly higher than background. The level of copper was 80 ug/l in the FPC sample which was also qualified as not significantly higher than background. The CES sample had 5 ug/l of copper. The levels of compounds found in either sample are listed in Table 1.

Monitoring Well M1-Lined

Split samples accepted from this well were analyzed for TCL compounds. The results are listed in Table 2. 1,1-Dichloroethane and 1,1,1-trichloroethane were detected at comparable levels in both FPC and CES samples. Trichloroethene was detected in the FPC sample at a level below the CRQL, and was undetected in the CES sample.

Residential Well (RW)12 - R. ULRICH

These samples were analyzed for TAL and TCL compounds. No TCL compounds were detected in either FPC or CES samples. The dissolved metals detected in the filtered samples are listed in Table 3. All results were within 22.3 % RSD, with the exception of barium and sodium. Barium was detected in the CES duplicate samples at much higher levels than were detected in FPC samples. The CES results, however, were qualified as possibly not representing accurate quantification.

Sodium was detected in FPC's sample at 907.0 ug/l, which was quantified as not substantially above background. CES samples were analyzed at 2,020 ug/l and 1,980 ug/l, which give 76.1% and 74.3% RSD's respectively.

Monitoring Well 20-88

Split samples from this well were analyzed for TCL compounds. Acetone was detected in the FPC sample only, at a level not significantly higher than background, as indicated in Table 4.

Monitoring Well 9-88

Samples from this well were analyzed for TAL and TCL compounds. Organic compounds were detected at comparable levels in FPC and CES samples, except for one compound. 1,2-Dichloroethane was detected in FPC's sample at 12.0 ug/l and in CES's sample #12 at 13 ug/l, which gives a RSD of 8.0%. However, in CES's duplicate sample #13, 1,2-dichloroethane was undetected at a CRQL of 5; therefore the RSD is greater than 82.4%.

The metals also showed consistent results between samples from both laboratories, except for aluminum content. Aluminum was not detected in the FPC sample above the detection limit of 29.0 ug/l. CES's duplicate samples were analyzed to contain 46 ug/l and 61 ug/l of aluminum; however, these results were qualified as not being significantly above background levels. The results are compiled in Table 5.

Monitoring Well 13-88

Split samples accepted from this well were analyzed for TAL and TCL compounds. Trace amounts of organic compounds were identified in FPC samples only at levels below CES's detection limit. These compounds, as well as inorganic compounds found in the filtered samples, are listed in Table 6. The only inorganic compounds with large % RSD's were aluminum and antimony. Both of these compounds, when detected, were qualified as not significantly above background.

Monitoring Well 19-88

Samples from this well were analyzed for TAL and TCL compounds. Trace levels of three organic compounds were detected in FPC samples only. Table 7 lists the organic compounds detected, as well as the inorganic compounds detected in the filtered samples. Aluminum and antimony had >100% RSD and

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>85% RSD, respectively. Aluminum, while undetected in FPC's sample at a detection limit of 22.0 ug/l, was reported to be present at 68 ug/l in CES's sample. This result, however, was qualified as not significantly above background. Likewise, 49.3 ug/l of antimony was reported in FPC's sample as not significantly above background, and undetected in CES's sample at a CRQL of 20 ug/l.

5.0 CONCLUSION

The results of the sample analyses compared for this report indicate that many of the compounds which were analyzed for were below detection limits. For comparison purposes, two types of results were not calculated into the final results:

- o Compounds detected in a sample at a level below the detection limit of the other laboratory; and,
- o Compounds undetected in a sample if the other laboratory qualified its results with an "R" (results may be unreliable) or a "J" (quantification may not be accurate).

Of the remaining 100 samples, 10 compounds were undetected in one sample while not detected at levels substantially above detection limits in the other laboratory's sample. For comparison purposes, the CRQL was used as a value for the undetected sample, in order to calculate a minimum % RSD. These results, however, will not be calculated into the final results. Seventy-three of the remaining 90 samples were within the 40% RSD. Sixteen that were not in this range were flagged with qualifier codes in at least one split sample for that parameter, so that an accurate comparison could not be made. There was one sample above 40% RSD that was not flagged with qualifier codes.

The non-qualified result having greater than a 40% RSD was from Monitoring Well 9-88. FPC detected 12.0 ug/l of 1,2-dichloroethane in the sample, and CES analysis showed 13 ug/l in one sample and less than 5 ug/l in their duplicate sample.

In conclusion, 73 of 90 samples were within 40% RSD. Therefore, 81.1% of the results of the PRP's analysis compared well with FPC's results.

- Table 1 -
8/14/89: Residential Well - Bickel

Organic Compounds	CRQL	FPC (mg/l)		CES (mg/l)		% RSD
Methylene chloride	5	--	U	5.8	B	>14.8
Acetone	10	13	B	--	U	>26.1
Phenol	10	--	U	10	R	N/A
2-Chlorophenol	10	--	U	10	R	N/A
2-Methylphenol	10	--	U	10	R	N/A
4-Methylphenol	10	--	U	10	R	N/A
2-Nitrophenol	10	--	U	10	R	N/A
2,4-Dimethylphenol	10	--	U	10	R	N/A
Benzoic Acid	50	--	U	50	R	N/A
2,4-Dichlorophenol	10	--	U	10	R	N/A
4-Chloro-3-Methylphenol	10	--	U	10	R	N/A
2,4,6-Trichlorophenol	10	--	U	10	R	N/A
2,4,5-Trichlorophenol	10	--	U	10	R	N/A

(continued)

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- Table 1 (continued) -
8/14/89: Residential Well - Bickle

Total Metals	FPC (ug/l)		CES (ug/l)		% RSD
Aluminum	37.5	B	60	B	46.2
Arsenic	8.8	B	8.9	J	1.1
Barium	464.0		511		9.6
Calcium	106,000.0		115,000		8.1
Cobalt	13.4	B	12		11.0
Copper	8.0	B	5		46.2
Iron	2,540.0		2,570		1.2
Lead	2.1	B	2.31	B	9.5
Magnesium	12,500.0		12,800		2.4
Manganese	1,090.0		1,230		12.1
Nickel	14.4	B	12		18.2
Potassium	588.0	B	(2,607)	UL	N/A
Sodium	2,220.0		2,370		6.5
Zinc	23.8		21		12.5

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- Table 2 -
8/22/89: Monitoring Well M1 - lined

Organic Compounds	CRQL	FPC* (ug/l)			CES (ug/l)	%RSD
1,1-Dichloroethane	5	#5	34.0		36	5.7
		#6	36.0			0.0
1,1,1-Trichloroethane	5	#5	29.0		37	24.2
		#6	31.0			17.6
Trichloroethene	5	#5	3.0	J	--	N/A
		#6	3.0	J		N/A

* FPC duplicate samples #5 and #6

- Table 3 -
8/24/89: Residential Well - Ulrich

Dissolved Metals	FPC (ug/l)		CES** (ug/l)				% RSD
			#RW-12		#RW-13		
Aluminum	(29.0)	U	41.3	B	27	B	N/A
Barium	58.9	B	114	J	115	J	63.7-64.5
Calcium	4,740.0	B	5,330		5,180		11.7-8.9
Cobalt	(5.0)	U	3.1		2.6		N/A
Iron	5,480.0		5,620		5,250		2.5-6.8
Lead	2.0	B	0.9	B	1.3	B	0.8-0.4
Magnesium	915.0	B	1,090		1,070		17.5-15.6
Manganese	261.0		286		273		9.1-4.5
Nickel	(7.0)	U	3.6	J	6.6	J	N/A-N/A
Potassium	635.0	B	(2,607)	UL	(2,607)	UL	N/A-N/A
Sodium	907.0	B	2,020		1,980		76.1-74.3
Zinc	45.3		36.2		40.9		22.3-10.2

**CES duplicate samples #RW-12 and #RW-13

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- Table 4 -
8/24/89: Monitoring Well 20-88

Organic compounds	CRQL	FPC (ug/l)	CES (ug/l)	% RSD
Acetone	10	8.0 B	-- U	N/A

- Table 5 -
8/24/89: Monitoring Well 9-88

Organic Compounds	CRQL	FPC (ug/l)	CES* (ug/l)	% RSD
Acetone	10	170.0	#12 160	6.1
			#13 120	34.5
1,2-Dichloroethene (Total)	5	48.0	#12 58	18.9
			#13 50	4.1
1,2-Dichloroethane	5	12.0	#12 13	8.0
			#13 -- U	>82.4
1,1,1-Trichloroethane	5	12.0	#12 11	8.7
			#13 9.6	22.2
Trichloroethene	5	53.0	#12 47	12.0
			#13 41	25.5
4-Methyl-2-Pentanone	10	11.0	#12 -- U	>9.5
			#13 -- U	>9.5
Tetrachloroethylene	5	4.0 J	#12 5.8	36.7
			#13 -- U	N/A

*CES duplicate samples #12 and #13
(continued)

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- Table 5 (continued) -
8/24/89: Monitoring Well 9-88

Dissolved Metals	FPC (ug/l)		CES* (ug/l)				% RSD
			#12		#13		
Aluminum	(29.0)	U	46	B	61	B	>45->71
Barium	96.6	B	135	B	157	B	33.2-47.6
Cadmium	(4.0)	U	2.7	B	(1.6)	U	N/A-N/A
Calcium	75,300.0		69,700		71,300		7.7-2.3
Cobalt	9.0	B	11	B	12	B	20.0-28.6
Iron	41.6	B	(57)	U	(57)	U	N/A-N/A
Lead	(1.0)	U	0.4	B	0.38	B	N/A-N/A
Magnesium	2,310.0	B	2,120		2,140		8.6-7.6
Manganese	75.3		69		70		8.7-7.3
Nickel	21.6	B	23	B	23	B	6.3-6.3
Potassium	3,460.0	B	2,790		2,700		21.4-24.7
Silver	(8.0)	U	(6.2)	UL	8.6	B	N/A->7.2
Sodium	7,680.0		8,420		9,050		9.2-16.4
Zinc	26.9		21		21		24.6-24.6

*CES duplicate samples #12 and #13

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- Table 6 -
9/18/89: Monitoring Well 13-88

Organic Compounds	CRQL	FPC* (ug/l)			CES (ug/l)		% RSD
Methylene Chloride	5	#13	3.0	J	--	U	N/A
		#14	3.0	J			N/A
Acetone	5	#13	3.0	B	--	U	N/A
		#14	3.0	B			N/A
bis(2-Ethylhexyl) phthalate	10	#13	2.0	B	--	U	N/A
		#14	--	U			--

Dissolved Metals	FPC** (ug/l)				CES (ug/l)		% RSD
	#674		#614				
Aluminum	(22.0)	U	26.0	B	43	B	>65 -49.3
Antimony	39.9	B	33.2	B	(20)	U	>66 - >50
Barium	11.4	B	11.4	B	12		5.1-5.1
Calcium	86,100.0		85,000.0		85,200		1.1-0.2
Copper	(5.0)	U	4.1	B	(4.2)	U	N/A-N/A
Iron	60.0	B	59.3	B	(57)	U	>5.1- >4.0
Lead	(1.0)	U	(1.0)	UL	0.29	B	N/A-N/A
Magnesium	33,700.0		33,400.0		33,600		0.3-0.6
Manganese	10.7	B	8.7	B	6.5		48.8-28.9
Potassium	1,000.0	B	1,110.0	B	(2,607)	UL	N/A-N/A
Silver	6.7	B	(6.0)	U	6.2	R	6.8- >3.3
Sodium	1,020.0	B	1,280.0	B	1,150		12.0-10.7
Zinc	8.9	B	7.3	B	(7.6)	U	15.8-N/A

*FPC duplicate samples #13 and #14
**FPC duplicate samples #674 and #614

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- Table 7 -
9/18/89: Monitoring Well 19-88

Organic Compounds	CRQL	FPC (ug/l)	CES (ug/l)	% RSD
Chloroethane	10	4.0 J	-- U	N/A
1,1-Dichloroethane	5	6.0	-- U	>18.2
bis(2-Ethylhexyl) phthalate	10	5.0 B	-- U	N/A

Dissolved Metals	FPC (ug/l)	CES (ug/l)	% RSD
Aluminum	(22.0) U	68 B	>100
Antimony	49.3 B	(20) U	>85
Arsenic	6.2 B	8.3	29.0
Barium	73.0 B	83	12.8
Calcium	151,000.0	146,000	3.3
Cobalt	(8.0) U	2.1 B	N/A
Iron	3,770.0	3,700 J	1.9
Lead	(1.0) UL	0.62 B	N/A
Magnesium	53,500.0	51,200	4.4
Manganese	384.0	385	0.3
Nickel	(10.0) U	3.9	N/A
Potassium	2,420.0 B	(2,607) UL	N/A
Silver	(6.0) U	6.2 R	>3.3
Sodium	2,040.0	2,140	4.8
Zinc	23.4	19	20.8

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